DOCUMENT RESUME

ED 187 862 CE 025 091

AUTHOR Wilkinson, Donald R.
TITLE A Comparison Study of Secondary Distributive Education Students with Other Secondary Students on Economic Literacy.
INSTITUTION East Tennessee State Univ., Johnson City.
PUB DATE [79]
NOTE 38p.

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Academic Achievement; Comparative Analysis; *Distributive Education; *Economics; Educational Assessment; Educational Research; *High School Seniors; Outcomes of Education; *Program Effectiveness; Secondary Education

ABSTRACT

The purpose of this study was to determine which group, cooperative distributive education senior students or other secondary senior students, has the greater understanding of general economic concepts. Data were gathered from 1978-79 senior students in eight public secondary schools located in upper east Tennessee. Samples drawn from these eight schools were divided into three groups of participants: (1) senior students enrolled in distributive education without other economic instruction, (2) senior students enrolled in distributive education with other economic instruction, and (3) senior students not in distributive education but enrolled in a course of economics prior to participating in the study. Based on a forty-six multiple choice question economic literacy test, no evidence was found that senior students enrolled in distributive education possess a lower degree of knowledge of general economic concepts than senior students not enrolled in distributive education who have taken a one-semester course in economics. In addition, it was concluded that senior students having had a one-semester course in economics but not enrolled in distributive education display the same knowledge of general economic concepts as senior students who enroll in distributive education and a one-semester course in economics. (IRA)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED187862

A COMPARISON STUDY OF SECONDARY DISTRIBUTIVE EDUCATION STUDENTS WITH OTHER SECONDARY STUDENTS ON ECONOMIC LITERACY

By

DONALD R. WILKINSON
ASSISTANT PROFESSOR OF BUSINESS EDUCATION
EAST TENNESSEE STATE UNIVERSITY
JOHNSON CITY, TENNESSEE 37601

FUNDED BY
CONTRACTS AND GRANTS OFFICE
EAST TENNESSEE STATE UNIVERSITY
JOHNSON CITY, TENNESSEE 37601

CE 025 091

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Donald R. Wilkinson

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ACKNOWLEDGMENTS

This writer acknowledges the assistance of the Office of Contracts and Grants, East Tennessee State University, Johnson City, Tennessee, for providing the necessary funds to conduct this study. A sincere expression of appreciation is given to Mrs. Carole Bolling, graduate assistant, for her efforts in collecting information included in Chapter II, "Review of Related Literature."

The writer is also indebted to Dr. W. F. Mackara for his assistance in the calculation of necessary statistical analysis and his contributions to Chapter IV, "Statistical Analysis."

A sincere thank you is given to each school and student that participated in the study.

TABLE OF CONTENTS

ACKNOWLEDGMENTS

CHAPTER I--INTRODUCTION

Purpose of the Study 2
Statement of the Problem 2
Need for the Study 3
Basic Assumptions 3
Limitations of the Study 4
Definition of Terms 4
Summary 5

CHAPTER II--REVIEW OF RELATED LITERATURE

Economic Education 8
Economics and Business and Distributive Education 11
Summary 13

CHAPTER III--METHODOLOGY

Selection of Programs and/or Schools 14
Selection of Samples 15
The Economic Literacy Test 16
Summary 20

CHAPTER IV--STATISTICAL ANALYSIS

Individual School Analysis 23
Conclusion of Statistical Analysis 25

CHAPTER V--SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary 28
Conclusions 29
Recommendations 30

APPENDIX A

APPENDIX B

CHAPTER I

INTRODUCTION

Much has been written in the past months concerning the shortcomings of the American public school systems. It is the general consensus of parents that public education should provide their children with a general education through the twelfth grade. Many parents also expect their children to learn how to earn a living.

To help meet these objectives, Tennessee, as well as many other states, have established rules and regulations that must be met before students are graduated from high school. Among these requirements is a program of studies that consists of the following:[1]

English Language Arts	4 units
Mathematics	1 unit
American History	1 unit
Physical Education	1 unit
Health Education	1/2 unit
Science	1 unit
Economics	1/2 unit
Electives	9 units
Total	18 units

---

[1] Rules, Regulations and Minimum Standards, 1977-78, Tennessee State Board of Education, Nashville, Tennessee, July, 1977, p. 56.

Students may meet the economics requirement in one of three ways. These are (1) a one-semester course in economics, (2) out-of-school experiences through Junior Achievement, or (3) enrolling in distributive education. Each distributive education instructor is to include economic instruction in their curriculum.

Purpose of the Study

The purpose of this study was to determine which group, the cooperative distributive education senior students or other secondary senior students, have the greatest understanding of general economic concepts. This understanding was measured by a test provided by the Joint Council of Economic Education.

Results of this study may prove beneficial to distributive education teacher-coordinators and economics teachers in planning and teaching their courses. The high school administration may find the results useful in planning curriculum and teacher educators may use the results in various methods of teaching classes. The Tennessee Department of Education may use the results in modifying requirements for high school graduation. The information obtained may prove to be of assistance to educators, administrators, and other groups or individuals who have an interest in the public secondary school and its programs.

Statement of the Problem

The problem studied was whether or not there are significant differences at the .05 level in economic literacy between senior students who are enrolled in a cooperative distributive education program and other secondary senior students who were not enrolled in a high school cooperative distributive education program.

Need for the Study

Although cooperative distributive education students in Tennessee receive credit in economics to meet the regulations provided by the State, little research has been done to measure the extent of economic literacy they possess as compared to other high school students.

It would appear that by matching cooperative distributive education students in a given year with other high school students who have had a course in economics and administering a test designed to measure the economic literacy, researchers would be able to assess differences of the two groups. These differences may be due to the courses taken or to the inherent characteristics of the two groups.

Participants at the National Conference on Research, held at Oklahoma State University, February, 1969, suggested some critical areas for vocational education. Among these critical areas were topics concerned with the competencies that should be developed through related instruction, the percentage of training needs that can be met through cooperative distributive education, who benefits from cooperative vocational education, and research needed to improve effectiveness and efficiency of existing programs and to develop viable instruction for new occupations and additional groups of students.[2]

Basic Assumptions

In conducting this study, various assumptions were made concerning the participants in the study. First, it was assumed that all of the

---

[2] A Guide for Cooperative Vocational Education, Prepared by University of Minnesota, Under Contract with the U. S. Office of Education, Minneapolis, Minnesota, September, 1969, p. 112-113.

cooperative distributive programs were similar in the respect that all received vocational funds and was taught by qualified teacher-coordinators since all were certified by the Tennessee Department of Education. Secondly, it was assumed that all of the other high school students received similar instruction in economics since all of the economics instructors were certified by the Tennessee Department of Education to teach courses in economics.

Limitations of the Study

The limitations of this study were:

1. The study was limited to public high school students enrolled during the 1978-79 academic year.

2. A true sampling technique was not used in selecting the schools or students where the study was conducted.

3. The lack of funds restricted the geographic area to be included in the study.

4. The marking of the tests was done by hand, thus the data are dependent upon correct interpretation and recording by the researcher.

5. Since the economics test was administered in March and/or April, 1979, economic instruction may not have been completed in the distributive education programs or the economic classes.

Definition of Terms

The following definitions should be applied to the various terms used in this study.

1. Cooperative education program. This term defines an instructional program or method in which the school and business community cooperate to provide on-the-job training to students. Usually, the student spends

one-half day in school and one-half day on the job. A certified teacher-coordinator supervises the student while the student is on the job.

2. Distributive education. The American Vocational Association defines distributive education as:[3]

> "A program of instruction in marketing, merchandising, and management. The program is concerned with training needed for purposes of up-dating, up-grading, career development, and occupational management."

3. Distributive education student. A high school senior student enrolled in the distributive education program.

4. Economic literacy. A basic understanding of economic concepts that describe or explains how the economic system works in the United States. Generally recognized as the economic understandings that an informed citizen needs to make proper decisions concerning his role in the economic activities in which he is involved.

5. Other high school senior student. Any high school senior student who did not participate in the cooperative distributive education program. The student must have been enrolled in an economics course either prior to or during the research period.

Summary

It is the general consensus of parents that public education should provide their children with a general education through the twelfth grade, and many expect their children to learn how to earn a living.

To help accomplish these objectives the Tennessee State Department of Education has established rules and regulations that must be met before

---

[3] Committee of Publications, Definitions of Terms in Vocational and Practical Arts Education, Washington, D. C.: American Vocational Association.

a student is graduated from high school. One of these requirements is that all graduating students must receive instruction in economics by (1) one-semester course in economics, (2) out-of-school experience through Junior Achievement, or (3) enrolling in distributive education.

The purpose of this study was to determine which group, the cooperative distributive education students or other secondary students, have the greatest understanding of general economic concepts as measured by a test provided by the Joint Council of Economic Education.

CHAPTER II

REVIEW OF RELATED LITERATURE

If the American "free enterprise system" is to survive, it is essential that people--especially young people, in whose hands the future already is molded--should be prepared to act intelligently when faced with the broad issues that arise daily in the realm of business and economics."[4]

Responsibility for preparing young people for intelligent action rests fundamentally upon American teachers. Since economics is closely related to business education and since many business teachers already have the necessary preparation for ability to teach economics principles and concepts, then the burden for teaching economics must fall in large part on them. Most business subjects being taught today lend themselves to teaching of economic principles, as well as to the development of the critical thinking and sound judgments on matters involving business and economics. Business educators have a reason to be vitally concerned about the economic literacy of their students. If students are to be more than employees filling the niche properly in business, then they must know something about the business organization of which he is a part and about the economic system in which they are significant elements. For years students have been required to take courses in the sciences to know about

---

[4]Joint Council of Economic Education and National Business Education Association, A Teachers Guide to Economics in the Business Education Curriculum, (New York: Joint Council of Economic Education, 1963), p. 1-3.

their environment. They have had courses in English so they can communicate effectively within their environment, both orally and in writing. They study history to gain insight into the political and social foundations. For all students, and particularly business students whose future judgment and actions as businessmen and women may have especially heavy impact on the economic world, it is becoming more important that they understand the nature of their business economic environment.

Economic Education

Since the need for economic literacy is common to all individuals, economic education is an essential part of general education and of the commitment of the secondary school. That business education is an appropriate vehicle for developing economic understanding on the high school level is a fact that has been well documented over the past two decades. Ideally, economic education is a continuous process beginning in the home; included in the total school program from grade one through high school; and pursued through college, vocations, or self-directed efforts throughout a person's life.[5]

Although Americans constitute only about 6% of the world's population and occupy a comparable percentage of the world's land area: they own nearly one-half of the world's wealth; produce almost one-third of the world's food supply; own three-fourths of the world's automobiles; over half of its telephones, radios and televisions; produce about one-third

---

[5]Anne Scott Daughtrey, "Economic Education in the High School Business Education Curriculum," Two Decades of Partnership in Economic Education, (Washington, D. C.: NBEA, 1969), p. 20.

of the world's electric power and have about 15 times more personal possessions than the rest of the world's population.[6]

The need for economic knowledge is growing rapidly, but the need is not widely recognized nor its implications adequately understood. Economic literacy is vital to the survival of the American society. Economic education has been a cause celebre for a number of years and many millions spent on its behalf by business, labor and civic groups.[7]

Economic programs are being set up by industry, but the majority of Americans must receive a formal economic education in the primary and secondary schools. Educators are still grappling with the meaning of the term "economic education." There seems to be considerable differences in just what is meant by economic education. Fortune Magazine describes the strategy that business has used to cope with the illusiveness of economic education.

> "One of the most fashionable ways of standing up these days--hundreds of companies are resorting to it and spending tens of millions in the process--is to purvey something called "economic education." The phrase itself is misleading. To be sure, a few companies are doing what it suggests: teaching economics. But most of the activities that go by the name "economic education" have little to do with economics in the strict sense, and none of them is really intended to improve people's minds. They are programs of indirect advocacy, and their purpose is political persuasion. "Don't quote me," says the director of one economic education program, "but we're propagandizing, we're selling.'"[8]

---

[6]Glen L. Boyer and Gary R. Smith, "Is There Such a Thing as Economic Education?" Balance Sheet, LX (October, 1978), p. 60.

[7]Joint Council on Economic Education, op. cit., p. 2.

[8]Glen L. Boyer and Gary R. Smith, "Is There Such a Thing as Economic Education?" Balance Sheet, LX, (November, 1978), p. 101.

The economic problems of the 1980's will increase the public's awareness of the need for economic education. More and more people are coming to realize that they can function effectively in their daily lives only if they understand certain basic economic concepts. There will be new pressures on the schools to increase their economic education efforts. The great struggles and the lengthy debates will center on the selection of economic concepts to be taught. Presently, the Joint Council on Economic Education is developing a national curriculum model for economic educators, called the Master Curriculum Project. The following steps are part of a preliminary version for emphasizing the fundamental economic concept approach: (1) basic economic problems, (2) economic systems, (3) basic analytical tools, (4) fundamental concepts, (5) evaluating and measuring economic performance, and (6) case application.[9]

The goal of economics education is not, of course, to make every student a professional economist, but to help all students understand our economic system, its operation, its problems, and its possibilities. Because ours is a dynamic economy, new problems and new areas of economic interest are constantly arising making necessary some change in the basic topics to be studied. One of the important aspects of a student's economic education should be to learn that while the techniques of problem-solving may remain the same, no solution can be considered final. Even more important is the need for open, inquiring minds not only in the areas of personal interest and concern, but also in the broader realm of total

---

[9]J. Curtis Hall and Dennis O'Toole, "Economic Literacy," Business Education--Yesterday, Today and Tomorrow, (Reston, VA: NBEA, 1976), p. 242.

interests and social values. It is the task of economic education to develop better thinking along both lines.[10]

Economics and Business and Distributive Education

Business and distributive education has made major contributions to students in developing skills and knowledge for careers in business, preparing students for higher education enrollments, and contributing to wise consumer decisions in developing an understanding for appreciation of the American enterprise system. In all of these areas economics has a place in upgrading the preparation of the student.

There are two general approaches to the inclusion of economics in the school program. One approach is through the offering of courses in economics; the other is through the integration of subject matter of an economic nature in courses which are primarily "non-economic" in nature. The ideal approach is a combination whereby learnings concerning economic matters are integrated in various courses as feasible and appropriate. One of the dangers of the integrated approach is that the learnings, which are incorporated, may be fragmentary and piecemeal in nature, thus making it difficult for the student to see the total picture and the significance of these learnings in the over-all economic pattern.

Since the need for economic literacy is common to all individuals, economic education is an essential part of general education and of the commitment of the secondary school. It is through this rationale that business and distributive education accepts its responsibility in economic education.

---

[10]Joint Council on Economic Education, op. cit., p. 11.

Although business educators have been trying to maintain economic concepts in their business subjects there have still been controversies as to whether business educators are living up to these standards.

Studies by Neal E. Vivian, Darrel R. Clemmensen, and Gloria Barfuss conclude that secondary school students possess a very limited understanding of the basic economic principles considered essentials to economic literacy.[11]

In 1974 and 1975 two studies were conducted under the auspices of the National Management Advisory Council to the Distributive Education Division of the American Vocational Association. These studies designed and conducted by the Sears Merchandizing Research Department were to ascertain knowledge and attitudes of distributive education seniors and non-distributive education seniors in secondary schools.[12] The reports indicated that distributive education students are not receiving adequate preparation in regard to economic competencies nor do the teachers possess all that would be desirable in regard to economic competence.

It has been suggested that the obstacles that are causing failure in training business students (vocational, distributive, and general) are: (1) a shortage of teachers prepared to teach economics, (2) goals for economic education not defined, (3) insufficient teaching materials, and (4) tests for progress.[13]

---

[11]Boyer, op. cit., p. 61.

[12]Benton E. Miles, "Developing DE Programs," Curriculum Developments in Education, (Reston, VA: NBEA, 1977), p. 194.

[13]Joint Council of Economic Education Handbook, p. 12-13.

Business and distributive education teachers have an excellent opportunity to advance economic understanding and a responsibility to do so. Students in these areas are students who intend to enter some phase of business practice.

Everyone has a stake in the outcome of the fight for economic literacy. Business educators should be in the vanguard of the movement to promote and improve economic literacy. Practically every course we offer lends itself to the stressing of various economic concepts. It is up to teachers to view economic literacy as a top priority item and incorporate economic concepts in their teaching.[14]

Summary

There is no way to overlook the importance of economic literacy. It is an essential part of our everyday lives. Perhaps business educators have "fallen down on the job" in preparing their students with an economic understanding. It is now time for secondary school educators to teach tomorrow's leaders, our youth today, all there is to know about economics so that they may face the future well prepared on all levels--personal, local, national, and world-wide.[15]

---

[14]Ray A. Faidley, "Economic Illiteracy--The Silent Subsersive," Balance Sheet, LVIII, (December, 1976-January, 1977), p. 175.

[15]S. P. Marcus and P. J. Richman, "A Proposal to Revise the Secondary School Curriculum in Economics," Social Education, (January, 1978), p. 77.

CHAPTER III

METHODOLOGY

The information included in this study was gathered from 1978-79 senior students from eight public secondary schools located in Upper East Tennessee. The information was obtained through the use of an economics test designed, by the Joint Council of Economic Education, to measure the economic understandings of high school students. The test was given by the researcher or his designates to groups of students identified as distributive education students and/or other senior students.

Selection of Programs and/or Schools

A list of public secondary schools that offered a cooperative distributive education program was obtained from the Vocational Education Division of the Tennessee State Department of Education. This list divided the State into four regions, with East Tennessee designated as Region I. In Region I there were fifty schools that offered cooperative distributive education programs. Fourteen of these fifty schools are located in Upper East Tennessee.

A letter was sent to the high school principal of each of the fourteen schools requesting permission to administer the economics test to their students. Permission from the cooperative distributive education teacher-coordinators and ecomomics teachers were requested in the same letter. A form to designate the approval or rejection was enclosed with the letter and was to be returned to the researcher. Eight schools gave

their permission and agreed to participate in the study. A copy of the initial letter and approval form are included in Appendix A.

An agreement was reached, in the initial letter, between the researcher and the principals that all students and schools would remain anonymous. For this reason, each of the eight schools that participated in the study were assigned a letter, A through H, for identification purposes.

Schools included in the study may be county or city schools and may have more than one distributive education teacher-coordinator or economics teacher.

Selection of Samples

The samples in this study originally included two classifications of participants--cooperative distributive education senior students and other senior students in the same high school. However after tabulating the results of questions asked on the answer sheet pertaining to class enrollment, it was decided to divide the samples into the following three groups of participants.

1. Senior students enrolled in distributive education without other economic instruction, classified as Distributive Education Only.

2. Senior students enrolled in distributive education with other economic instruction, classified as Distributive Education and Economics.

3. Senior students not in distributive education but enrolled in a course of economics prior to taking the Test of Eco omic Literacy, classified as Economics Only.

Distributive Education Students Only. The cooperative distributive education students were defined as students enrolled in the distributive education program.. After receiving permission to do the study from the

High school principals and distributive education teacher-coordinators the students enrolled in the cooperative distributive education program automatically became part of the sample.

A total of 132 distributive education senior students were tested in the eight high schools.

Distributive Education Students with Economics. Distributive education students with economics courses includes the students that were enrolled in distributive education and had also taken a course in economics prior to taking the Test of Economic Literacy. The 127 senior students included in this group automatically became part of the sample when permission to conduct the study was obtained from the high school principal, distributive education teacher-coordinator, and economics teacher.

Other Senior Students: Economics Only. Students that were not enrolled in the distributive education program were included in this group. Students in this group were twelfth grade students currently enrolled in economics or earned economics credit by enrolling in an economics course prior to taking the test.

The 416 students included in this group automatically became part of the sample when permission to do the study was obtained from the high school principal and economics teachers.

Table 3-1, on the next page, indicates the school, designated by letter, and numbers of students in each of the above categories.

The Economic Literacy Test

The economic literacy test used for this study was the Test of Economic Literacy, Form A published by the Joint Council of Economic

TABLE 3-1. Number of students in each group by school.

SCHOOL	DISTRIBUTIVE EDUCATION ONLY	DISTRIBUTIVE EDUCATION AND ECONOMICS	ECONOMICS ONLY	TOTALS
A	38	10	138	186
B	2	18	70	90
C	24	10	37	71
D	13	4	51	68
E	17	24	18	59
F	7	28	15	50
G	16	17	27	60
H	15	16	60	91
TOTALS	132	127	416	675

Education in 1978. The test consisted of 46 multiple choice questions with four alternatives for each question. The Test of Economic Literacy has seven content categories; namely, The Basic Economic Problem, Economic Systems, Microeconomics: Resource Allocation and Income Distribution, Macroeconomics: Economic Stability and Growth, The World Economy, Economic Institutions, and Concepts for Evaluating Economic Actions and Policies. The content categories and subdivisions are illustrated on page 18 in Table 3-2.

Table 3-3 on page 19 shows the content categories by letter and number in Column I and the question number(s) that were used to test

TABLE 3-2. Content categories for the Test of Economic Literacy.

A. The Basic Economic Problem

1. Economic Wants
2. Productive Resources
3. Scarcity and Choices
4. Opportunity Costs and Trade-offs
5. Marginalism and Equilibrium

B. Economic Systems

6. Nature and Types of Economic Systems
7. Economic Incentives
8. Specialization, Comparative Advantage, and the Division of Labor
9. Voluntary Exchange
10. Interdependence
11. Government Intervention and Regulation

C. Microeconomics: Resource Allocation and Income Distribution

12. Markets, Supply and Demand
13. The Price Mechanism
14. Competition and Market Structure
15. "Market Failures": Information Costs, Resource Immobility, Externalities, etc.
16. Income Distribution and Government Redistribution

D. Macroeconomics: Economic Stability and Growth

17. Aggregate Supply and Productive Capacity
18. Aggregate Demand: Unemployment and Inflation
19. Real and Noney Income: Price Level Changes
20. Money and Monetary Policy
21. Fiscal Policy: Taxes, Expenditures, and Transfers
22. Economic Growth
23. Saving, Investment, and Productivity

E. The World Economy

24. International Economics

F. Economic Institutions

G. Concepts for Evaluating Economic Actions and Policies

Economic Goals: Freedom, Economic Efficienty, Equity, Security, Stability, and Growth

Trade-offs Among Goals

that specific category in in Column II. A copy of the complete test and answer sheet is included in Appendix B.

TABLE 3-3. Content Categories with Question Numbers for Specific Categories.

COLUMN I		COLUMN II
A	1	
	2	1
	3	2
	4	3
	5	19
B	6	4, 6
	7	5
	8	7
	9	8
	10	
	11	9
C	12	11, 14, 15
	13	16, 17, 22
	14	12, 20, 21
	15	13, 23, 24
	16	10, 18
D	17	33
	18	25, 38, 39
	19	26, 30, 27, 28, 42
	20	31, 32, 34
	21	37, 40, 41
	22	35
	23	36
E	24	43
F		44, 46
G		29, 45

Summary

The sample used in this study was comprised of cooperative distributive education students and other secondary students in public county and/or city schools. The students and schools selected were chosen from a list provided by the Vocational Education Division of the Tennessee Department of Education. All of the schools selected were in Upper East Tennessee.

The sample was broken into three categories--Distributive Education Students, Distributive Education Students with Economics, and Economics Students. These groups of students were compared on an economic literacy test published by the Joint Council of Economic Education.

CHAPTER IV

STATISTICAL ANALYSIS

The means, standard deviations, and number of observations for the three groups are summarized below.

TABLE 4-1. Summary of Performance on the Test of Economic Literacy for the three groups.

Group	$\bar{X}$	S	N
Distributive Education Only	18.73	5.44	132
Economics Only	19.64	5.93	416
Distributive Education + Economics	19.54	6.15	127

In terms of mean scores, the Economics Only group scored highest; Distributive Education + Economics, second; and Distributive Education Only, third. Such differences may be due to random chance or may reflect some real differences between the three groups. To determine which of these is the case, the data were analyzed by an analysis of variance (ANOVA). The results of this ANOVA is summarized in the following table:

TABLE 4-2. ANOVA for the three groups.

Source	Sums of Squares	Degrees of Freedom	Mean Squares
Between Groups	83.13	2	41.57
Within Groups	23,209.42	672	34.54
TOTAL	23,292.55	674	

The F-statistic was 1.20. This value indicates that the probability that the observed differences between the groups was due to chance alone is over 20 in 100, (.20). This does not meet the standards conventionally considered to be "statistically significant" (.05 or .01). Thus the observed differences between the three groups are not large enough to be considered as hard evidence of any relative superiority in the economic literacy for any of the groups. This finding can be reinforced by investigating the existence of intergroup differences using two alternative techniques, the Scheffe's test and the t-test. The Scheffe's test is the more stringent of the two and is in other ways superior to the t-test.[16] The t-test represents, as it were, sort of a "lower boundary" as the significance tests. In other words, the Scheffe's test is a "conservative" measure of the significance of differences; the t-test, a "liberal" one.

In the following table, the first column gives the groups whose mean scores differences are being analyzed. The group with the higher mean

TABLE 4-3. Intergroup differences based on the Scheffe's test and t-test.

Group Mean Differences	Scheffe's Test	t-test
Economics Only vs. Distributive Education Only	$p > .20$	$.10 < p < .20$
Economics Only vs. Distributive Education + Economics	$p > .20$	$p > .20$
Distributive Education + Economics vs. Distributive Education Only	$p > .20$	$.10 < p < .20$

[16] James L. Bruning and B. L. Kintz, Computational Handbook of Statistics, (Glenview, Illinois: Scott, Foreman and Co.), Second Edition, 1977, p. 108-125.

score is listed first. The second and third columns give the probability that the observed differences would be due to chance alone according to the Scheffe's test and t-test respectively.

Given that the conventionally accepted levels for significance are .05 and .01, none of these differences are classically significant. The tentative inference is again that all three groups performed about equally on the Test of Economic Literacy (TEL).

INDIVIDUAL SCHOOL ANALYSIS

The overall analysis may mask differences within the individual schools. To see if this were the case, the individual schools were subjected to the same analysis as the total group. TABLE 4-4 summarizes the data for the eight schools. The numbers indicate the mean scores.

TABLE 4-4. Summary of performance by the three groups at individual schools.

School	Distributive Education Only	Economics Only	Distributive Education + Economics
A	18.66	19.60	16.00
B	16.00	17.24	18.72
C	16.42	21.03	17.30
D	22.31	19.18	11.75
E	19.24	20.33	18.50
F	19.57	26.93	22.54
G	17.31	22.44	21.35
H	20.47	18.72	20.44

Note that for six of the schools, the Economics Only group scored better than Distributive Education Only group, and in six of the

schools the Economics Only group scored better than Distributive Education + Economics group. In two of the schools, the Distributive Education Only group did better than the Economics Only group, and in four cases it did better than the Distributive Education + Economics group. In four cases, the Distributive Education + Economics group did better than the Distributive Education Only group, while it did better than the Economics Only group in two schools.

To analyze the significance of these differences, ANOVA's were run for each individual school. The following table summarizes the results of these ANOVA's, showing the F-statistic and significance level for each.

TABLE 4-5. Summary of ANOVA for individual schools.

School	F-statistic	Significance
A	2.38	$.05 < p < .10$
B	.54	$p > .20$
C	6.89	$.001 < p < .005$
D	4.60	$.01 < p < .025$
E	.68	$p > .20$
F	3.24	$.025 < p < .05$
G	4.38	$.01 < p < .025$
H	1.00	$p > .20$

The results indicate that a significant difference between the three groups appeared in Schools C, D, F, and G.

To see where the source of the differences lay, the Scheffe's test and t-test were applied to the means using the ANOVA results. The following table lists the results of these tests. The first column contains the groups being compared. E.g., "Eoncomics > Distributive

Education" means the average score for the Economics Only group exceeded the Distributive Education Only group. The second column lists the schools where this situation was true. The third and fourth columns show the probability that the situation was due to random chance according to the Scheffe's test and t-test, respectively. The last column indicates whether the tests suggest that the situation is significant at the .05 level.

Table 4-6 also shows that in two of the eight cases, the Economics Only group did significantly better than the Distributive Education Only group, and was "marginally" better in one other, in the sense that the significance appeared only for the weaker of the two tests.

The superiority of this group was over the Distributive Education + Economics group is less evident. In three of the schools the difference was at best, only "marginally" significant. Even in these cases, the difference is significant only if the .05 standard is used. Under the more stringent .01 standard, these cases would not be considered significant.

With regard to superior performance by the Distributive Education Only group, there is only one case where this was demonstrated. At School D, the Distributive Education group unequivocally outperformed the Distributive Education + Economics group.

CONCLUSION OF STATISTICAL ANALYSIS

The Economics Only group on average demonstrated a better understanding of Economics than the Distributive Education Only group in six of the eight schools and for the total set of students. This difference was significant for two of the eight schools. This group also

TABLE 4-6. Intergroup differences at individual schools.

Situation	School	Scheffe's	t-test	Significance
Economics > Distributive Education	A	$p > .20$	$.10 < p < .20$	no
	B	$p > .20$	$p > .20$	no
	C	$p < .005$	$p < .001$	yes
	E	$p > .20$	$p > .20$	no
	F	$.05 < p < .10$	$.02 < p < .05$	marginal
	G	$.01 < p < .025$	$p < .01$	yes
Economics > Distributive Education + Economics	A	$.10 < p < .20$	$.02 < p < .05$	marginal
	C	$.10 < p < .20$	$.02 < p < .05$	marginal
	D	$.05 < p < .10$	$.02 < p < .05$	marginal
	E	$p > .20$	$.10 < p < .20$	no
	F	$.10 < p < .20$	$.05 < p < .10$	no
	G	$p > .20$	$p > .20$	no
Distributive Education + Economics > Distributive Education	B	$p > .20$	$.10 < p < .20$	no
	C	$p > .20$	$.10 < p < .20$	no
	F	$p > .20$	$.10 < p < .20$	no
	G	$.10 < p < .20$	$.02 < p < .05$	marginal
Distributive Education > Economics	D	$p > .20$	$.10 < p < .20$	no
	H	$p > .20$	$.10 < p < .20$	no
Distributive Education > Distributive Education + Economics	A	$p > .20$	$.05 < p < .10$	no
	D	$.01 < p < .025$	$.001 < p < .01$	yes
	E	$p > .20$	$p > .20$	no
	H	$p > .20$	$p > .20$	no
Distributive Education + Economics > Economics	B	$p > .20$	$.10 < p < .20$	no
	H	$p > .20$	$.10 < p < .20$	no

scored higher than the Distributive Education + Economics group in six of the eight schools and in the total set. However, the difference was not unequivocally significant at any of the individual schools. The Distributive Education + Economics group had a non-significantly higher mean score than the Distributive Education group in four schools and in the overall set.

At only one school did the Distributive Education Only group definitely outperform any of the other groups (namely the Distributive Education + Economics group).

These findings offer only suggestions, rather then firm evidence of the comparative merits of economics and distributive education. The overall ANOVA supports the decision to continue including distributive education credit as a mean of meeting the state of Tennessee's economics requirement. The individual schools' ANOVA's do initimate that students taking economics only display a superior performance on the TEL. Yet even here, this was only clear in two of the schools. This probably says more about the teachers of the economics course at those schools then it does about the course itself as a whole.[17]

In summary, no clear pattern as to the superiority of any group is revealed. Rather the more plausible hypothesis is that economics and distributive education provide about the equivalent level of economic understanding.

---

[17]The only remaining case for the advantage of economics over distributive education is a purely directional one, i.e. statistical significance aside, there are more cases where the economics group performed better in paired comparisons.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The problem studied was whether or not there are significant differences at the .05 level in economic literacy between senior students who are enrolled in a cooperative distributive education program and other secondary senior students who were not enrolled in a high school cooperative distributive education program.

The Tennessee State Department of Education awards credit for economics in three ways: (1) one-semester course in economics, (2) out-of-school experience through Junior Achievement, and (3) enrolling in distributive education. It is assumed that students in each of the above programs receive equal instruction and knowledge in the field of economics.

The information included in this study was gathered from 1978-79 senior students from eight public secondary schools located in Upper East Tennessee. The information was obtained through the use of an economics test designed by the Joint Council of Economic Education to measure the economic literacy of high school students.

The sample used was comprised of senior cooperative distributive education students and other senior secondary students in public county and/or city schools. The sample was broken into three categories -- Distributive Education students, Distributive Education students with economics, and Economics students. The Distributive Education students (designated as Distributive Education Only) group consisted of 132 students; Distributive Education with Economics (designated as Distributive

Education plus Economics) consisted of 127 students: Economics students (designated as Economics Only) consisted of 416 students.

The mean score for the Distributive Education Only group was 18.73; Economics Only, 19.64; and Distributive Education plus Economics, 19.54. Students who took a course in economics (Economics Only group) performed no better on the Test of Economic Literacy than those students included in the other two groups. Likewise, those students who enrolled in both, distributive education and economics, did not perform significantly better than those who enrolled in distributive education only.

Conclusions

The following conclusions are based on the data provided by the results obtained from the Test of Economic Literacy published by the Joint Council of Economic Education.

1. There is no evidence that senior students enrolled in distributive education possess a lower degree of knowledge of general economic concepts than senior students who have taken a one-semester course in economics, but are not enrolled in distributive education.

2. Senior students having had a one-semester course in economics but not enrolled in distributive education display the same knowledge of general economic concepts as senior students who enroll in distributive education and a one-semester course in economics.

3. Senior students who enroll in distributive education and a one-semester course in economics do not possess any greater knowledge of general economic concepts than do students enrolled in distributive education only.

Recommendations

As a result of the data obtained for this study, the following recommendations are made:

1. The State Department of Education should continue the policy of allowing credit in Distributive Education as meeting the requirement of one-semester (1/2 unit) of economics for high school graduation.

2. This study should be replicated elsewhere to ascertain if the data obtained on economic literacy is reliable.

3. Economic instruction should be expanded to a full academic year.

4. Every distributive education teacher should remain current in economics by enrolling in economic classes, workshops, seminars, and/or in-service activities.

APPENDIX A

EAST TENNESSEE STATE UNIVERSITY

JOHNSON CITY, TENNESSEE 37601

COLLEGE OF BUSINESS
Department of Office Management

September 20, 1978

High School Principal
_____ High School
_____, TN xxxxx

Dear Sir:

Each high school student in Tennessee must earn a total of 18 units, including 1/2 unit in economics, to be graduated from high school. As you know, students may meet the economics requirement by taking a semester course in economics, through Junior Achievement, or enrolling in distributive education.

I would like to involve your school and students in a study designed to measure the general economics understandings of distributive education students as compared with other high school seniors in the same school. Specifically, I request your permission and the permission of your distributive education teacher(s) and economics teacher(s) to administer a test provided by the Joint Council of Economic Education to each group of students during the latter part of March or first part of April, 1979. This test consist of multiple choice questions and will take about 30 minutes of the student's time.

The identification of students will be held in confidence. The identity of any specific individual will not be known except he/she will be identified by group (distributive education or other senior student). No names, addresses, sex, age, or code numbers will be used on the test or answer sheet. Schools will be identified by a letter of the alphabet. No one except you and I will know the letter of your school.

The enclosed statement should be returned to me with signatures specifying approval or rejection of your permission. If you have questions concerning this study, please call me at 929-4397 (office) or 926-3919 (home) or write me. I will be happy to come to your school, at your request, to discuss this study with you and others involved.

Sincerely,

Donald R. Wilkinson
Asst. Prof. Business Education
East Tennessee State University
Johnson City, TN 37601

xx

REQUEST FOR PERMISSION TO CONDUCT

ECONOMIC LITERACY STUDY

Permission has been requested by Dr. Donald R. Wilkinson, Assistant Professor of Business Education, East Tennessee State University, Johnson City, Tennessee to administer an economics test provided by the Joint Council of Economic Education to our senior students in March/April, 1979. A copy of the results of this study will be provided to us.

Specific objectives of the study are to determine which group, distributive education students or other senior students, have the greatest understanding of general economic concepts and to determine if any differences, in economic literacy is significant at the .05 level.

APPROVE	REJECT
_____	_____
PRINCIPAL	PRINCIPAL
_____	_____
D. E. INSTRUCTOR	D. E. INSTRUCTOR
_____	_____
ECONOMICS INSTRUCTOR	ECONOMICS INSTRUCTOR

Please return this form to DR. DONALD WILKINSON, ASSISTANT PROFESSOR OF BUSINESS EDUCATION, EAST TENNESSEE STATE UNIVERSITY, P.O. BOX 24312 University Station, JOHNSON CITY, TN 37601 by NOVEMBER 15, 1978.

School_____

City_____

APPENDIX B

The Joint Council on Economic Education's Test of Economic Literacy was REMOVED BECAUSE OF COPYRIGHT Restrictions.